3. Program Effectiveness

Since Bridges Plus is a new project the effectiveness of this specific program has not been established. However, the results of a pilot program and the research-based instructional strategies that will be used in this project have proven effectiveness. During the 2003/2004 school year a pilot literacy program was conducted at elementary schools in three of the most at-risk districts in Genesee County (excluding Flint – a similar SES application has been written to meet the unique needs of Flint Schools and its students). The results of the 3 ½ month pilot project at South Bendle Elementary resulted in an average gain of 5 months in reading.

Bendle South Elementary School

Growth Summary

22 Students	Grade Placement	SS	GE	PR	NCE	IRL
Pretest Mean	**2.23**	**116**	**1.5**	**11**	**23.9**	**PP**
Posttest Mean	**2.68**	**204**	**2.0**	**20**	**31.9**	**1.2**
Change	**0.45**	**88**	**0.5**	**9**	**8.0**	**1.4**

Growth Report/STAR Reading – 5/26/04

BP teachers will utilize a variety of best practices when working with students. These strategies are research-based and have a history of enhancing academic achievement. Strategies that will be utilized include Direct Instruction (DI), Balanced Literacy and Cooperative Learning.

Schools fully implementing the National Institute for Direct Instruction (NIFDI) approach produce evidence of success in direct proportion to teaching improvements. The most significant improvement in standardized test data is likely to become evident in the third year of implementation. The greatest gains are normally shown by students who began using DI in kindergarten and have continued through second grade and beyond.

A report from the American Institutes for Research for AASA, AFT, NAESP, NASSP, and NEA of all schoolwide reform models indicated that 32 of 34 qualifying studies demonstrated a positive effect of DI on student achievement. In addition, DI was reported effective in improving overall achievement plus achievement in language, reading, mathematics, spelling, health and science. Perhaps most interesting, it had a positive effect on these affective behaviors and social skills: self esteem/concept, attitudes toward self and school, attribution of success or failure to self or outside, sense of responsibility and high school success.

Cooperative Learning is research-based and will also be used by teachers to engage youth in academics. The **Five Elements of Cooperative Learning** are:

a. Positive Interdependence (sink or swim together)

- Each group member's efforts are required and indispensable for group success

- Each group member has a unique contribution to make to the joint effort because of his or her resources and/or role and task responsibilities

b. Face-to-Face Interaction (promote each other's success)

- Orally explaining how to solve problems
- Teaching one's knowledge to other
- Checking for understanding
- Discussing concepts being learned
- Connecting present with past learning

c. Individual and Group Accountability (no hitchhiking! no social loafing)

- Keeping the size of the group small. The smaller the size of the group, the greater the individual accountability may be.
- Giving an individual test to each student
- Randomly examining students orally by calling on one student to present his or her group's work to the teacher (in the presence of the group) or to the entire class.
- Observing each group recording the frequency with which each member-contributes to the group's work.
- Assigning one student in each group the role of checker. The checker asks other group members to explain the reasoning and rationale underlying group answers.
- Having students teach what they learned to someone else.

d. Interpersonal and Small-Group Skills

- Social skills must be taught:
  + Leadership
  + Decision-making
  + Trust-building
  + Communication
  + Conflict-management skills

e. Group Processing

- Group members discuss how well they are achieving their goals and maintaining effective working relationships
- Describe what member actions are helpful and not helpful
- Make decisions about what behaviors to continue or change

Class Activities that use Cooperative Learning are:

a. Jigsaw – Groups with five students are set up. Each group member is assigned some unique material to learn and then to teach to his group members. To help in the learning students across the class working on the same sub-section get together to decide what is important and how to teach it. After practice in these "expert" groups the original groups reform and students teach each other. (Wood, p. 17) Tests or assessment follows.

b. Think-Pair-Share – Involves a three step cooperative structure. During the first step individuals think silently about a question posed by the instructor. Individuals pair up during the second step and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group.

c. Three-Step Interview – Each member of a team chooses another member to be a partner. During the first step individuals interview their partners by asking clarifying questions. During the second step partners reverse the roles. For the final step, members share their partner's response with the team.

d. Round Robin Brainstorming – Class is divided into small groups (4 to 6) with one person appointed as the recorder. A question is posed with many answers and students are given time to think about answers. After the "think time," members of the team share responses with one another round robin style. The recorder writes down the answers of the group members. The person next to the recorder starts and each person in the group in order gives an answer until time is called.

e. Three-minute review – Teachers stop any time during a lecture or discussion and give teams three minutes to review what has been said, ask clarifying questions or answer questions.

f. Numbered Heads – A team of four is established. Each member is given numbers of 1, 2, 3, 4. Questions are asked of the group. Groups work together to answer the question so that all can verbally answer the question. Teacher calls out a number (two) and each two is asked to give the answer.

g. Team Pair Solo – Students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help (mediation) than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help.

h. Circle the Sage – First the teacher polls the class to see which students have a special knowledge to share. For example the teacher may ask who in the class was able to solve a difficult math homework question, who had visited Mexico, who know the chemical reactions involved in how salting the streets help dissipate snow. Those students (the sages) stand and spread out in the room. The teacher then has the rest of the classmates each surround a sage, with no two members of the same team going to the same sage. The sage explains what they know while the classmates listen, ask questions, and take notes. All students then return to their teams. Each in turn, explains what they learned. Because each one has gone to a different sage, they compare notes. If there is disagreement, they stand up as a team. Finally, the disagreements are aired and resolved.

i. Partners – The class is divided into teams of four. Partners move to one side of the room. Half of each team is given an assignment to master to be able to teach the other half. Partners work to learn and can consult with other partners working on the same material. Teams go back together with each set of partners teaching the other set. Partners quiz and tutor teammates. Team reviews how well they learned and taught and how they might improve the process.

Credits:

David and Roger Johnson. "Cooperative Learning." [Online] 15 October 2001. <http://www.clcrc.com/pages/cl.html>.

Howard Community College's Teaching Resources. "Ideas on Cooperative Learning and the use of Small Groups." [Online] 15 October 2001. <http://www.howardcc.edu/profdev/resources/learning/groups1.htm>.

Teachers will plan and adjust instruction and also group and instruct students who are not meeting standards, including at-risk students, according to their needs. Teachers will use criteria like Adequate Yearly Progress to focus their efforts on reducing the number of students in the lowest MEAP categories and increasing the number of students in the highest MEAP categories. The process of assessment, analysis and adjusted instruction will repeat Deming's cycle of Plan-Do-Study-Act to improve the quality of teaching and learning.

Research has shown that this alignment process increases student achievement towards high standards (Koczor, 1984; Tallarico, 1984; Ella, 1986; Hahey, 1986). Research here in Michigan by CIERA, as reported in the Achieve Report (1988), points to the positive effects of this kind of alignment. In other words, everyone is working toward the same target.

The mathematics strategies as described in *Promising Practices in Mathematics & Science Education* sponsored by the USDOE sites the *Michigan Mathematics Inservice Project* as promising. These teaching strategies include Hands-On-Learning, Student-Centered Learning, Whole-Language Approach and Cooperative/Group Learning. The study indicated that this project met the following NCTM Standards:

☑ Pose tasks based on sound and significant mathematics.

☑ Build on students' prior experience and knowledge.

☑ Develop mathematics thinking skills that convince students of the validity of particular representations, solutions, conjectures, and answers.

☑ Engage students' intellect; pose questions and tasks that elicit, engage, and challenge each student's thinking.

☑ Develop students' mathematical knowledge and skills.

☑ Stimulate students to make connections and develop a coherent framework for mathematical ideas.

☑ Call for problem formulation, problem solving, and mathematical reasoning.

☑ Promote the development of all students' dispositions to do mathematics.

☑ Develop an instructional model based on the range of ways students learn mathematics.

4. Describe evaluation, monitoring for effectiveness and communication process.

a. Describe how the program will be monitored for progress:

Genesee Intermediate School District, Health, Safety & Nutrition Services staff will conduct continuous evaluation of project progress. Lesson plans will be submitted by each teacher to the Project Director. Weekly task forms and attendance sheets are also submitted by teachers. The Project Coordinator will be responsible for staff development, observation of classroom teachers to ensure that classes are beginning and ending on time, that students with special needs have been accommodated and monthly assessments have been completed noting reading and math progress for each student.

b. All students will complete a pretest to establish baseline data for reading/language and math. The Star Reader will be the assessment tool used to establish pretest baseline and post test progress. Each month the instructor will test the student to measure monthly progress so that accommodations can be made in instruction if the student is not showing improvements.

c. Monthly progress will be communicated to parents via the U.S. Postal Service and to classroom teachers and principals via inter-school mail.

d. BP teachers will be available to meet with parents and local school staff whenever requested. BP staff will also have email accounts to facilitate communication.

e. All program records will be maintained at GISD/Health, Safety and Nutrition Services.

f. BP data will be included in the overall evaluation of the Bridges to the Future projects. Michigan State University's Outreach Partnership with Dr. Hi Fitzgerald, Principal Investigator and Jessica Barnes, Ph.D., Program Manager, has been contracted to complete this independent evaluation.